

REMARKS

Claims 1-24 are pending and stand rejected. All pending claims are believed to be allowable over the reference cited by the Examiner as discussed below. Accordingly, a Notice of Allowance for the present application is respectfully requested.

Examiner Interview Summary

The undersigned appreciates the time and consideration given during the Examiner telephone interview on May 7, 2002. The claims and the cited references were discussed and no agreement was reached. In addition, the objections to the drawings were discussed and the Examiner noted that new drawings are not required at this time as the drawings as filed are merely informal drawings.

Drawings

Applicants believe that the drawings are proper as they are merely informal drawings. Formal drawings will be submitted once the application is in condition for allowance.

Rejection Under 35 U.S.C. §102(b)

Claims 1-2 and 13-14 stand rejected under 35 U.S.C. §102(b) as being anticipated by Faillon et al. Applicants respectfully disagree.

Claim 1, for example, recites a device for generating a *plurality* of electron beams that comprises a source of radiation, a modulator, and a photocathode that receives modulated radiation and *produces a plurality of electron beams under impact by the modulated radiation*. In other words, the photocathode is impacted by the modulated radiation to produce a plurality of electron beams. Generation of a plurality of electron beams facilitates in increasing throughput and/or efficiency. This is noted in the specification as filed at, for example, page 1, lines 14-15 and page 8, lines 27-31.

The Examiner asserts that Faillon discloses an electron gun having a luminous source modulated by optical modulator and a photocathode which receives the modulated radiation. However, Faillon makes no mention of the photocathode as being impacted by modulated radiation to produce *a plurality of electron beams*. As Faillon neither discloses nor suggests

generation of a *plurality of electron beams*, Faillon fails to anticipate the invention of claim 1 and a prima facie case of 102(b) rejection has not been made.

In response to the Applicants' argument regarding claim 1, the Examiner notes that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claims invention. The Examiner further notes that "if the prior art structure is capable of performing the intended use, then it meets the claims. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art." The Examiner cites case law, in particular, *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963) in support.

In re Oto held that inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims. For example, *In re Casey* concerns a taping machine that provides "a surface to which adhesive tape will detachably adhere." (See also MPEP 2115).

In contrast, the claim recitation that the photocathode being positioned "so as to receive said modulated radiation wherein said photocathode produces a plurality of electron beams under impact by said modulated radiation" is not a recitation of use of the claimed device. Rather, it is a structural limitation that is different from the cited art, i.e., Faillon.

Furthermore, the Examiner concludes that Faillon teaches the generation of a plurality of electron beams from Faillon's teaching generation of electron packets. However, Faillon clearly teaches generation of a single "electron beam pulsed in electron packets 3". (See column 6, lines 41-42: "The electron beam pulsed in packets 3 is focused by a focusing electrode 24")

Faillon also teaches that the electrons mutually repel when they are no longer subject to focusing fields and thus adopt diverging trajectories 12 to arrive at the collector 6 which dissipates their kinetic energy. (Column 6, lines 46-50). Such repelling of the electrons from each other is not to be confused with producing a plurality of electron *beams* nor a photocathode that is impacted by modulated radiation to produces a plurality of electron beams.

Similarly, independent claim 13 recites a method of producing a plurality of electron beams that comprises directing radiation onto a modulator and directing the modulated radiation onto a photocathode thereby producing a plurality of electron beams. Again, because Faillon makes no mention of the photocathode as receiving modulated radiation and producing *a plurality of electron beams* under impact by the modulated radiation, Faillon fails to anticipate the invention of independent claim 13 and a prima facie case of 102(b) rejection has not been made.

In view of the foregoing, withdrawal of the rejection of independent claims 1 and 13 as well as claims 2 and 14 dependent variously therefrom under 35 U.S.C. §102(b) is respectfully requested.

Rejections Under 35 U.S.C. §103

Claims 4-12 and 16-24 stand rejected under 35 U.S.C. §103(a) as being unpatentable. In particular, claims 7-9 and 19-21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Faillon. In addition, claims 4, 10, 16, and 22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Faillon in view of Taft et al. and claims 5-6, 11-12, 17-18, and 23-24 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Faillon in view of Gutin et al.

Applicants respectfully disagree. Dependent claims 2-6 and 14-18 are believed to be allowable at least because the independent claims 1 and 13 from which they variously depend are allowable as discussed above.

In addition, independent claim 7 recites an electron beam lithography system that comprises (a) a radiation source, (b) a modulator, (c) a photocathode that receives modulated radiation from the modulator and *produces a plurality of electron beams* under impact by the modulated radiation, and (d) an electron beam optical column to receive the plurality of electron beams and to direct the plurality of electron beams onto a target.

Similarly, independent claim 19 recites a method of performing lithography with multiple beams of electrons that comprises (a) directing radiation onto a modulator, (b) directing modulated radiation onto a photocathode to produce *a plurality of electron beams*, and (c) directing the plurality of electron beams onto the acceptance region of an electron beam optical column.

As discussed above, Faillon makes no mention of the photocathode as receiving modulated radiation and producing *a plurality of electron beams*. Thus, Faillon neither discloses nor suggests, either alone or in combination with Taft et al. and/or Gutin et al., generation of a plurality of electron beams, a prima facie case of 103(a) rejection has not been made and independent claims 7 and 19 are believed to be allowable.

In view of the foregoing, withdrawal of the rejection of claims 4-12 and 16-24 under 35 U.S.C. §103(a) is respectfully requested.

CONCLUSION

Applicants believe that all pending claims are allowable and respectfully request a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.


In the unlikely event that the transmittal letter accompanying this document is separated from this document and the Patent Office determines that an Extension of Time under 37 CFR 1.136 and/or any other relief is required, Applicant hereby petitions for any required relief including Extensions of Time and/or any other relief and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 50-1217 (Order No. AMATP010).

Respectfully submitted,

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